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Ermanno Righi

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EXAMINER

ALTUN, NURI B

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,464	<b>Applicant(s)</b> RIGHI ET AL.	
	<b>Examiner</b> Nuri Boran ALTUN	<b>Art Unit</b> 3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

Amendment received on 06/01/2009 has been acknowledged. Claim 1 has been amended.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/01/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1 and 3-18 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nagano (5,288,278)**, in view of **Dupoyet (4,265,134)**.

**As per claim 1**, Nagano teaches an articulated chain (3) for drive transmission in bicycles, comprising:

a plurality of external links (12) each of which exhibits at least a first external plate (12a –top-) having a first end an a second end, and a second external plate (12a-

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bottom-), parallel to the first external plate and having a first end and a second end (5b) (see Fig. 4);

a plurality of rotation pivots (chain pins 14; which is construed to be rotation pivot) interpositioned between the first external plate (12a-top) and the second external plate (12a-bottom-) of each external link (12) in positions at the first ends and the second ends of the respective first external plate and the second external plate (col.2, lines 43-45, see Fig. 4);

a plurality of internal links (12), each of which internal links exhibits at least a first internal plate (12b-top-) having a first end and a second end and a second internal plate (12b-bottom), parallel to the first internal plate and having a first end and a second end (see Fig. 4);

a plurality of bushes (rollers 15; which are construed to be bushes) interpositioned between the first internal plate (12b-top-) and the second internal plate (12b-bottom) of each internal link (12) at the first ends and the second ends thereof (see Fig. 4), each of the rotation pivots (14) being inserted coaxially into a bush (15) of the plurality of bushes (15), for defining an alternating succession of the external links (12) and the internal links (12) which are rotatably and consecutively connected about respective main rotation axes (col.2, line46, see Fig. 4);

each of the plurality of bushes (15) defining, with a respective pivot (14), a spherical coupling surface for allowing a rotation between an internal link (12b) and an adjacent external link (12a), about a perpendicular axis to the main rotation axis (see Fig. 9), wherein it comprises anti-rotation elements (17) which reduce a possibility of

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rotation with respect to an alignment direction of each pair of links being an internal link and an external link (col.2, lines 63-68; see Fig. 3 and 4).

However, Nagano doesn't explicitly disclose the anti-rotation elements comprising spacers interpositioned between the external plates of each external link and the internal plates of each internal link at the respective ends thereof, the spacers always being in contact with the internal plates and always reducing a possibility of torsional rotation between each pair of external links and internal links about a longitudinal alignment axis of the pair which is perpendicular to a corresponding main rotation axis thereof.

Dupoyet teaches a transmission chain having the concept of the anti-rotation elements comprising spacers (5) interpositioned between the external plates of each external link (9) and the internal plates of each internal link (1) at the respective ends thereof (See Fig. 1 and 13),

the spacers always being in contact with the internal plates and always reducing a possibility of torsional rotation between each pair of external links and internal links about a longitudinal alignment axis of the pair which is perpendicular to a corresponding main rotation axis thereof (See Fig. 13, since the spacers are located in between the internal and external links, it is construed that they inherently reduce the torsional rotation in between due to the spacers sticking out of the plates).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to limit the unwanted rotation of parts.

**As per claim 3**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 2, but doesn't explicitly disclose the spacers comprising, for each main rotation axis, a first pair of the spacers interpositioned between the first external plate and the first internal plate, and a second pair of the spacers interpositioned between the second external plate and the second internal plate, and wherein each of the first pair and the second pair of spacers is formed by two spacers arranged in proximity of edges of the respective first and second external plate and the first and second internal plate, in positions which are symmetrically opposite with respect to the longitudinal axis of the link.

Dupoyet teaches the spacers comprising, for each main rotation axis,  
a first pair of the spacers (5) interpositioned between the first external plate (9) and the first internal plate (1),  
and a second pair of the spacers (5) interpositioned between the second external plate (9) and the second internal plate (2),  
and wherein each of the first pair and the second pair of spacers is formed by two spacers arranged in proximity of edges of the respective first and second external plate and the first and second internal plate, in positions which are symmetrically opposite with respect to the longitudinal axis of the link (col.4, lines 35-38, see Fig. 13; since the spacers are offset to the common plane, it is construed that that they are arranged in proximity of edges of plates).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to limit the unwanted rotation of parts.

**As per claim 4**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 2, but doesn't explicitly disclose the spacers comprising, for each main rotation axis, a first spacer interpositioned between the first external plate and the first internal plate and a second spacer interpositioned between the second external plate and the second internal plate and wherein the first spacer and the second spacer are arranged in proximity of edges of the respective external plate and the internal plate and are aligned along a straight line which is parallel to the corresponding main rotation axis.

Dupoyet teaches the spacers comprising, for each main rotation axis,  
a first spacer (5) interpositioned between the first external plate (9) and the first internal plate (1)

and a second spacer (5) interpositioned between the second external plate (9) and the second internal plate (1)

and wherein the first spacer and the second spacer are arranged in proximity of edges of the respective external plate and the internal plate and are aligned along a straight line which is parallel to the corresponding main rotation axis (col.4, lines 35-38, see Fig. 13; since the spacers are offset to the common plane, it is construed that that they are arranged in proximity of edges of plates).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to limit the unwanted rotation of parts.

**As per claim 5**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 3, but doesn't explicitly disclose the spacers exhibiting a convex conformation having a spherical profile.

Dupoyet teaches the spacers (5) exhibit a convex conformation having a spherical profile (col.4, lines 28-30; see Fig. 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 6**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 3, but doesn't explicitly disclose the spacers being solidly constrained to the external plates of each external link.

Dupoyet teaches the spacers (5) are solidly constrained to the external plates (9) of each external link (See Fig. 13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 7**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 3, but doesn't explicitly disclose the spacers being solidly constrained to the internal plates of each internal link.



Dupoyet teaches the spacers (5) are solidly constrained to the internal plates (1, 2) of each internal link (See Fig. 13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 8**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 6, but doesn't explicitly disclose the spacers being defined by a convex swell obtained by plastic deformation of an edge zone of a corresponding external plate.

Dupoyet teaches the spacers (5) are defined by a convex swell obtained by plastic deformation of an edge zone of a corresponding external plate (See Fig. 13; since it is inherent that the deformation cannot be reversed due to the internal structure of the chain, it is construed that convex swell of the spacers are obtained by plastic deformation of edge of external plate).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 9**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 6, but doesn't explicitly disclose the spacers being defined by a shaped element connected to an edge zone of a corresponding external plate.

Dupoyet teaches the spacers (5a) are defined by a shaped element connected to an edge zone of a corresponding external plate (1b) (see Fig. 15).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 10**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 7, but doesn't explicitly disclose each of the spacers being defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding internal plate.

Dupoyet teaches the spacers (5) are defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding internal plate (See Fig. 13; since it is inherent that the deformation cannot be reversed due to the internal structure of the chain, it is construed that convex swell of the spacers are obtained by plastic deformation of edge of internal plate).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 11**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 8, but doesn't explicitly disclose each of the spacers being defined by a shaped element connected to an edge zone of a corresponding internal plate.

Dupoyet teaches each of the spacers (5a) is defined by a shaped element connected to an edge zone of a corresponding internal plate (1a, 2a).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 12**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 4, but doesn't explicitly disclose each of the spacers exhibiting a convex conformation having a spherical profile.

Dupoyet teaches each of the spacers (5) exhibit a convex conformation having a spherical profile (col.4, lines 28-30; see Fig. 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 13**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 4, but doesn't explicitly disclose the spacers being solidly connected to the external plates of each external link.

Dupoyet teaches the spacers (5) are solidly connected to the external plates (9) of each external link (See Fig. 13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 14**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 4, but doesn't explicitly disclose the spacers being solidly connected to the internal plates of each internal link.

Dupoyet teaches the spacers (5) are solidly constrained to the internal plates (1, 2) of each internal link (See Fig. 13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 15**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 13, but doesn't explicitly disclose the spacers being defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding external plate.

Dupoyet teaches the spacers (5) are defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding external plate (See Fig. 13; since it is inherent that the deformation cannot be reversed due to the internal structure of the chain, it is construed that convex swell of the spacers are obtained by plastic deformation of edge of external plate).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 16**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 13, but doesn't explicitly disclose the spacers being

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defined by a shaped element connected to an edge zone of a corresponding external plate.

Dupoyet teaches the spacers (5a) are defined by a shaped element connected to an edge zone of a corresponding external plate (1b) (see Fig. 15).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 17**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 14, but doesn't explicitly disclose each of the spacers being defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding internal plate.

Dupoyet teaches the spacers (5) are defined by a convex swelling obtained by plastic deformation of an edge zone of a corresponding internal plate (See Fig. 13; since it is inherent that the deformation cannot be reversed due to the internal structure of the chain, it is construed that convex swell of the spacers are obtained by plastic deformation of edge of internal plate).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 18**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 14, but doesn't explicitly disclose each of the spacers

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being defined by a shaped element connected to an edge zone of a corresponding internal plate.

Dupoyet teaches each of the spacers (5a) are defined by a shaped element connected to an edge zone of a corresponding internal plate (1a, 2a).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the spacers taught by Dupoyet in order to provide a better configuration.

**As per claim 30**, Nagano teaches all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly disclose the first internal plate and the second internal plate exhibiting, in an intermediate portion thereof, a bevelling which narrows a section thereof in proximity of the edge thereof.

Dupoyet teaches the first internal plate (1) and the second internal plate (2) exhibit, in an intermediate portion thereof, a bevelling which narrows a section thereof in proximity of the edge thereof (See Fig. 1 and 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chain of Nagano to include the bevelling taught by Dupoyet in order to improve chain engagement with the plates.

3. Claims **19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nagano (5,288,278)**, in view of **Dupoyet (4,265,134)**, as applied to claim 1, further in view of **Wang (5,322,483)**.

**As per claim 19**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly

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disclose the anti-rotation elements comprising swellings which are solidly connected to the external plates of each external link and are arranged centrally thereon, the swellings projecting internally of a chamber defined between the external plates and being of a dimension which reduces a breadth of the chamber at central portions of the external plates to a breadth of a like chamber comprised between the internal plates.

Wang teaches a renovated bicycle chain having the concept of the anti-rotation elements comprising swellings (22) which are solidly connected to the external plates of each external link (2) and are arranged centrally thereon (see Fig. 3),

the swellings projecting internally of a chamber (23) defined between the external plates (2) (see Fig. 3)

and being of a dimension which reduces a breadth of the chamber (23) at central portions of the external plates (2) to a breadth of a like chamber comprised between the internal plates (see Fig.3-4; col.1 line 65 – col.2 line 2; col.2, lines18-21).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the swellings taught by Wang in order to limit the unwanted rotation of parts.

**As per claim 20**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 19, but doesn't explicitly disclose the swellings exhibiting a convex conformation, having a spherical profile.

Wang teaches swellings (22) exhibit a convex conformation, having a spherical profile (see Fig. 3).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the swellings taught by Wang in order to limit the unwanted rotation of parts.

**As per claim 21**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 19, but doesn't explicitly disclose the swellings being obtained by plastic deformation of central portions of the external plates.

Wang teaches the swellings (22) are obtained by plastic deformation of central portions of the external plates (2) (col.1, lines 65-68; since it is inherent that the deformation cannot be reversed due to the internal structure of the chain, it is construed that swellings are obtained by plastic deformation of central portions of external plate).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the swellings taught by Wang in order to limit the unwanted rotation of parts.

**As per claim 22**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 19, but doesn't explicitly disclose the swellings being obtained by recessing and projecting plastic deformation of central portions of the external plates.

Wang teaches the swellings (22) are obtained by recessing and projecting plastic deformation of central portions of the external plates (col.2, lines 5-9, 18-21; since the described process leads to forming a circle of external plates, it is construed that swellings are obtained by recessing and projecting).



Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the swellings taught by Wang in order to limit the unwanted rotation of parts.

**As per claim 23**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 19, but doesn't explicitly disclose the swellings being defined by shaped elements connected to central portions of the external plates.

Wang teaches the swellings (22) are defined by shaped elements connected to central portions of the external plates (see Fig. 3 and 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the swellings taught by Wang in order to limit the unwanted rotation of parts.

4. Claims **24-26 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nagano (5,288,278)**, in view of **Dupoyet (4,265,134)**, as applied to claim 1, further in view of **Pierce (1,945,357)**.

**As per claim 24**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly disclose each rotation pivot exhibiting a barrel shape having a spherical profile and the respective bush exhibiting a seating having a straight profile.

Pierce teaches a chain having each rotation pivot (E4) exhibiting a barrel shape having a spherical profile (page1, lines 73-73, see Fig. 6) and the respective bush (E2) exhibiting a seating having a straight profile (page 1, lines 68-70, see Fig. 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the barrel and bush structure taught by Pierce in order to provide structural integrity.

**As per claim 25**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 1, but doesn't explicitly disclose each bush exhibiting a seating having a spherical projecting profile and the respective rotation pivot exhibiting a straight cylindrical shape having a straight profile.

Pierce teaches each bush (E3) exhibiting a seating having a spherical projecting profile (page 1, lines 69-72; see Fig. 7) and the respective rotation pivot (E4) exhibiting a straight cylindrical shape having a straight profile (see Fig. 7).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the barrel and bush structure taught by Pierce in order to provide structural integrity.

**As per claim 26**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 24, but doesn't explicitly disclose the spherical profile being afforded on a surface of the rotation pivot and the bush having a straight profile.

Pierce teaches the spherical profile is afforded on a surface of the rotation pivot (E4) (page 1, lines 73-73, see Fig. 6) and the bush (E2) has a straight profile (page 1, lines 68-70, see Fig. 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the barrel and bush structure taught by Pierce in order to provide structural integrity.

**As per claim 28**, Nagano and Dupoyet combination teaches all the structural elements of the claimed invention, as mentioned in claim 25, but doesn't explicitly disclose the spherical profile being exhibited on the surface of the seating of the bush and the pivot having a straight profile.

Pierce teaches the spherical profile is exhibited on the surface of the seating of the bush (E3) (page 1, lines 69-72; see Fig. 7) and the pivot (E4) has a straight profile (see Fig. 7).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano and Dupoyet to include the barrel and bush structure taught by Pierce in order to provide structural integrity.

5. Claims **27 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nagano (5,288,278)**, in view of **Dupoyet (4,265,134)**, as applied to claim 1, further in view of **Pierce (1,945,357)**, as applied to claim 24 above, and further in view of **Klaucke (2,277,915)**.

**As per claim 27**, The Nagano, Dupoyet and Pierce combination teaches all the structural elements of the claimed invention, as applied to claim 24 above, but doesn't explicitly disclose the spherical profile being defined by an annular element associated to the rotation pivot and the bush having a straight profile.

Klaucke teaches a twist chain with the concept of the spherical profile being defined by an annular element (19) associated to the rotation pivot (14) (page 2, lines 3-6) and the bush having a straight profile (see Fig. 3).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano, Dupoyet and Pierce to include the annular element taught by Klaucke in order to provide better connection between parts.

**As per claim 29**, The Nagano, Dupoyet and Pierce combination teaches all the structural elements of the claimed invention, as applied to claim 24 above, but doesn't explicitly disclose the spherical profile being defined by an annular element associated to the surface of the seating of the bush and the pivot having a straight profile.

Klaucke teaches the spherical profile is defined by an annular element (19) associated to the surface of the seating of the bush (page 2, lines 3-5) and the pivot (14) has a straight profile (see Fig. 3).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Nagano, Dupoyet and Pierce to include the annular element taught by Klaucke in order to provide better connection between parts.

### ***Response to Arguments***

Applicant's arguments filed on 06/01/2009 have been fully considered but they are not persuasive.

Applicants first argue that, “the spacer members of Dupoyet (4,265,134) cannot perform an anti-torsional function; the outer edge portions are positioned in the middle zone of the inner plates of the chain, they do not both contact together the adjacent external plates, but, when the rotation angle between the two adjacent internal and external plates exceeds a certain value, one of the two outer edge portions lose contact with the adjacent plate, so that any anti torsional effect is lost.” The examiner notes that no support for this argument is found in the Dupoyet reference; therefore it is not clear how and why the outer edge portions lose contact with the adjacent plate, losing anti torsional effect.

The examiner also notes that, claim 1 requires anti-rotation elements, interpositioned between the external and internal plates at respective ends, reducing possibility of torsional rotation between links about a longitudinal alignment axis perpendicular to a main rotation axis. By virtue of the spacers (5) sticking out of the internal plates toward the external plates as seen in Fig. 13, the rotation between the internal (1) and external (9) plates will inherently be reduced about a longitudinal axis, as broadly defined. Note the pin axis can be considered the longitudinal axis.

Thus, the spacers are considered as always being in contact with the internal plates of Dupoyet reducing torsional rotation between the plates.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nuri Boran ALTUN whose telephone number is (571)270-5807. The examiner can normally be reached on Mon - Fri 9:00 - 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272 7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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NBA